Acorus calamus L.

Synonym: *A. angustatus* Raf.; *A. aromaticus* Gilib.; *A. angustifolius* Schott.

Family: Acoraceae

Ayurvedic Name: Vaca, Bhadra

Hindi Name: Bach

Trade Name: Vacha, Sweet flag, Vauj

Habit: Hurb

Part Used: Rhizome

Active Ingredient: Acorenone, Acorin, α-pinene, Azulene, Camphor, Choline

Biological activity: Memory Enhancer, Antiasthmatic, Antidysenteric, Stomachic, Anagesic, Anodyne, Antianxiety, Anticancer, Anticonvulsant, Antiemetic, Antiflatulent, Antiinflammatory, Antimicrobial, Antioxidant, Antiseptic, Astringent, Demulcent, Diuretic, Emetic, Immunity Booster, Sedative, Stimulant, Uterine Stimulant, Vermifuge etc.

Traditional and Therapeutic use: The rhizomes of sweet flag are used for numerous medicinal purposes. The herb is used both internally as well as externally. The rhizome paste applied externally to alleviates the pain and swelling caused by rheumatic fever and inflamed joints. The powder of sweet flag given with lukewarm salt-water, induces vomiting and relieves phlegm, while easing coughs and asthma.

Morphological and floral characteristics: *Acorus calamus* is a semi-aquatic or marshy, perennial herb with indefinitely branched rhizomes, creeping in mud and having stout joints with large leaf scars. The rhizomes are cylindrical or somewhat compressed, about 1.5 cm in diameter, smooth, pinkish or pale green and are white and spongy within. The leaves are few in number, distichously alternate, forming erect tufts at the extremities of rhizomes.

Distribution: It is distributed throughout the tropics and subtropics, especially in India and Sri Lanka. It is found in marshes, wild or cultivated, ascending the Himalayas up to 1800 m. It is regularly cultivated in Koratagere taluk in Karnataka. The plant is grown in clayey loams and light alluvial soil of river bank.

Climate and Soil: Temperature ranging from 10°C to 38°C and annual rainfall between 70 and 250 cm are best suited. Cultivation should be avoided in places where there is no irrigation facility. Plenty of sunshine should be available to the plant during its growth and after harvesting for drying the rhizomes.

Main field plantation

Land preparation: The land should be ploughed twice or thrice prior to the onset of rains. The land should be prepared like paddy fields.

Transplanting and optimum spacing: *Acorus* is propagated through rhizomes. Rhizomes obtained from earlier planting are kept preserved in the soil and constantly kept moist. After emergence the rhizomes are cut into small pieces and planted. Sprouted rhizome pieces are planted at a spacing of 30 x 30 cm and depth of 4cm in the month of July-August. The best time for planting is the second fortnight of June. Around 111,000 plants can be planted per hectare. As the growth rate is very fast, sprouts are visible on the second day of planting.

Fertilizers: Compost/FYM @15 MT per hectare along with nitrogen and phosphorus is applied. One third of N along with 50 kg of P and 25 kg of K is the basal requirement. The second dose of N should be given after one month of planting as broadcast and a third dose should be applied after two months of planting.

Weed control: Timely weeding and hoeing to control the spread of weeds and to obtain good yield is essential. After each weeding the growing plants are pressed down into the soil.

Irrigation: The river or canal banks where the land is saturated with water is very suitable for its growth. The initial level of water standing in the field should be 5 cm and later increased to 10 cm. Irrigation can be avoided in the rainy season, however, if there is prolonged dry spell it must be irrigated at an interval of 2-3 days.

Diseases and pest control: Mealy bugs and caterpillar are the pests occurring on this crop. Spraying the shoots and drenching the roots of plants with 10 ml methyl parathion or 20ml Quinolphos in 10 liters of water can be effective in controlling the shoot and root mealy bugs. Major disease is leaf spot and a spray of Captan 10 g with Chloropyriphos 20ml/10 L controls leaf spot as well as mealy bugs and caterpillar.

Crop maturity and harvesting: After 6-8 months, in December, the lower leaves turn yellow and dry indicating their maturity. The field should be partially dried only leaving sufficient moisture for uprooting the plant. In case of large scale cultivation rhizomes may be removed by passing the plough.

Post-harvest management: The uprooted rhizome is cleaned after washing with water and cut into size of 5-7.5 cm length and fibrous roots removed. The cut rhizomes are dried by spreading under the shade so that the amount of oil present in it is not harmed.

Yield: The yield is expected to be 3500 – 4000 kg per hectare of dry rhizomes.